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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,211	01/25/2000	Il-Ki Woo	003364.P035	3154

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EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/494,211	Applicant(s) WOO ET AL.	
	Examiner Tracy Dove	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-10 and 14-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-10 and 14-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>20041129</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

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DETAILED ACTION

This Office Action is in response to the communication filed on 5/3/05. Applicant's arguments have been considered, but are not persuasive. Claims 3-10 and 14-32 are pending. Claims 1-2 and 11-13 have been canceled. This Action is made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3-10, 14-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 3 has been amended to recite a Cu-alloy comprising at least boron or cobalt and further comprising at least one of nickel, titanium, magnesium, tin, zinc, chromium, manganese, iron, vanadium, aluminum, zirconium, niobium, bismuth, lead or silver. Claims 4 and 19 have been amended to recite a Cu-alloy comprising at least boron or cobalt and further comprising at least two of nickel, titanium, magnesium, tin, zinc, chromium, manganese, silicon, iron, vanadium, aluminum, zirconium, niobium, phosphorous, bismuth, lead or silver. Claim 26 has been amended to recite a Cu-alloy comprising at least boron or cobalt and further comprising at least two of nickel, titanium, magnesium, manganese or zinc. However, the specification does not provide support for the specific copper alloy compositions claimed in claims 3, 4, 19 and 26. Specifically, the specification does not disclose a copper alloy containing boron or cobalt and at

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least one other metal. There is no specific disclose in the specification of a copper alloy containing boron or cobalt and at least one other metal. Furthermore, the specification does not even teach boron or cobalt are preferred for the copper based alloy. Thus, it does not appear that applicant had possession of the claimed invention.

Claims 3-10 and 14-31 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a Cu-based alloy comprising at least one material selected from the group consisting of nickel, titanium, magnesium, tin, zinc, chromium, manganese, iron, vanadium, aluminum, zirconium, niobium, bismuth, lead, silver, cobalt or boron, does not reasonably provide enablement for a Cu-based alloy comprising at least boron or cobalt and further comprising at least one of nickel, titanium, magnesium, tin, zinc, chromium, manganese, iron, vanadium, aluminum, zirconium, niobium, bismuth, lead or silver. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6, 26, 27, 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al., US 5,368,958.

Hirai teaches a rechargeable lithium battery comprising an anode, a cathode, a separator and an electrolyte (4:45-50). The cathode active material may be a lithium transition metal oxide

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compound (4:61-5:2). The anode active material may be lithium, lithium alloys or lithium intercalation compounds such as various kinds of carbon materials (4:31-36). The anode further contains a metal, alloy or composite foil comprising an alloy having at least two materials selected from the group consisting of Cr, Cu, Au, Ag, Al, In, Fe, Pb, Mn, Zn, Cd, Tl, Co, Ni and Sn. The foil has a thickness of from 5-500 μm (4:8-17). Example 1 teaches a copper foil with a thickness of 9 μm as the anode current collector.

Hirai does not explicitly teach a copper alloy comprising at least boron or cobalt wherein the alloy further comprises at least one of Ni, Ti, Mg, Sn, Zn, Cr, Mn, Fe, V, Al, Zr, Nb, Bi, Pb or Ag. Hirai does not teach the recited weight percentages of the claimed invention.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Hirai teaches a copper alloy foil may be used as the anode current collector. Hirai teaches that copper may be alloyed with materials such as Co, Ni, Sn, Zn, Cr, Mn, Fe, Al, Pb or Ag. Thus, Hirai suggests a copper alloy foil wherein the copper alloy comprises Co and at least one additional material such as Ni, Sn, Zn, Cr, Mn, Fe, Al, Pb or Ag. Hirai does not disclose any specific alloy compositions. However without any showing of critically, the claimed Cu-based alloy foil is considered obvious in view of Hirai.

Regarding the claimed weight percentages, the courts have ruled where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA 1250, 156 F.2d 239, 70 USPQ 412. The courts have held that a limitation merely with respect to proportions in a composition of matter or process will not support patentability unless such limitation is "critical". Minerals Separation, Ltd. v. Hyde, 242 U.S. 261 (1916). Furthermore, the courts

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have ruled that discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Furthermore, the courts have ruled that product-by-process limitations, in the absence of unexpected results, are obvious (In re Fessman). Thus, the limitation “produced by a plating process” is considered obvious in view of the prior art.

Response to Arguments

Applicant's arguments filed 5/3/05 have been fully considered but they are not persuasive.

Applicant argues that boron and cobalt are listed as additive elements and therefore a copper alloy containing boron and cobalt and at least one other metal is clearly supported in the original specification even if the copper alloy is not specifically asserted. Examiner disagrees. The specification must provide support for specific combinations of elements contained in the copper alloy. Examiner points out that Applicant has not addressed the scope of enablement rejection of claims 1-10 and 14-31. The specification must enable one of skill to make and use the claimed invention. The specification does not enable one of skill to specifically pick boron or cobalt and at least one other disclosed metal for the alloy components of the copper-based alloy.

The amendment filed 5/3/05 overcomes the 35 U.S.C. 112, 2nd, rejection. The rejection of claim 32 under 35 U.S.C. 102/103 in view of Ohashi is withdrawn.

Applicant argues Hirai does not teach or suggest the claimed weight percentages for the copper alloy foil. However, Hirai teaches a copper alloy foil may be used as the anode current collector. Hirai teaches that copper may be alloyed with materials such as Co, Ni, Sn, Zn, Cr,

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Mn, Fe, Al, Pb or Ag. Thus, Hirai suggests a copper alloy foil wherein the copper alloy comprises Co and at least one additional material such as Ni, Sn, Zn, Cr, Mn, Fe, Al, Pb or Ag. Hirai does not disclose any specific alloy compositions. However without any showing of critically, the claimed Cu-based alloy foil is considered obvious in view of Hirai. The courts have ruled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA 1250, 156 F.2d 239, 70 USPQ 412. The courts have held that a limitation merely with respect to proportions in a composition of matter or process will not support patentability unless such limitation is "critical". Minerals Separation, Ltd. v. Hyde, 242 U.S. 261 (1916).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TRACY DOVE
PRIMARY EXAMINER

August 1, 2005